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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,509	08/22/2003	Brice A. Johnson	091-0185	9658

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EXAMINER

AFTERGUT, JEFF H

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/646,509	Applicant(s) JOHNSON ET AL.	
	Examiner Jeff H. Aftergut	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT WO 03/035380 in view of Koury and either one of Bendarzewski et al or Zsolnay et al further taken with the admitted prior art and E.P. 198.744 optionally further taken with Ermert for the same reasons as expressed in paragraph 4 of the Office action dated April 4, 2006.

Regarding the newly presented language regarding the incorporation of the computer numeric controller to all of the plurality of delivery heads it should be noted that numeric control of a delivery head was known per se in the art of fiber placement (see paragraph [0007] of the specification for example), was known for control of the system for multiple head placement (Koury) and was known for control of the placement heads themselves (Bendarzewski et al or Zsolnay et al). As to the apparatus claims, the applicant is advised that the manner in which the machine is operated is of little patentable weight to the apparatus itself and that given the fact that numeric controllers were known for multiple placement head devices it would have been understood by those of ordinary skill in the art that the multiple head applicators as described in the Office action dated 4-4-06 would have been capable of acting in the manner claimed (with the specified machine utilization factor). Regarding the method claims, the applicant is advised that the evidence presented regarding the machine utilization factor is NOT commensurate in scope with the claims at hand. Note as addressed above, one

skilled in the art would have operated the machines of the prior art with numeric controllers and additionally the references to Bendarzewski et al or Zsolnay et al suggested that multiple heads would have improved productivity as did the reference to Koury. Clearly, one would have expected increased ability to produce the composite articles with the specified device. Further details of the deficiencies in the showings as presented will be discussed below.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The applicant in each of the independent claims has recited that the machine is operated such that there is a machine utilization factor that increases delivery of the composite material disproportionately for the number of material delivery heads in the plurality of heads over that of a single material delivery head (emphasis added). The implication is that the single delivery head of the claims is the same delivery head as that used when multiple heads are employed in the device and process, however applicant does not have support in the original disclosure for the same. In fact, at

paragraphs [0029]-[0030] the applicant describes the machine utilization factor and indicates that the head utilized in the comparison was a single head of more sophisticated design which applied composite tape which was 4 inches wide as opposed to the use of a plurality of heads which were of simpler construction which applied tape which was 12 inches wide. As such, the inference that the heads are the same in the comparison to arrive at the disproportionate machine utilization factor is new matter as applicant was not in possession of use of the same head construction for the single head and the multiple heads having the specified productivity.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In each of the presented claims, the applicant has amended the claim to compare the specified machine to a machine which uses a single material delivery head, however the exact scope of the claims cannot be ascertained as the claims seem to infer that the single delivery head is of the same construction as the multiple delivery heads of the claims. The applicant is advised that as described in the specification this is not the case. The heads of the multi head arrangement of the invention are of a simpler construction than the more complex head of the single head used in the comparison. As such, the claims must reflect the specific differences in construction in order to render sufficient meaning to the limitations (the exact scope of the claims

cannot be ascertained as it is not clear what types of heads are being compared).

Additionally, it should be noted that the single head of the comparison in the claim appears to only operate on a tape which is 4 inches wide and of a lesser thickness than the tapes employed by the machine of the invention (which are stated to be 1 foot wide and of a greater thickness, see paragraphs [0029]-[0030]). The applicant is advised that in order for the claims to be definite in scope the specific construction of the single head as well as the multiple heads must be clearly recited in the claims.

Response to Arguments

7. Applicant's arguments filed 6-27-06 have been fully considered but they are not persuasive.

The applicant argues that neither PCT '380 nor any of the reference cited address the problem of obtaining practical productivity for the composite laminate lay up of extremely large structure, e.g. those with mandrel diameters exceeding 15 feet. The applicant is advised that this argument is not persuasive because: (1) the claims are not commensurate in scope with the arguments as the only claim which recite the diameter of the mandrel is claim 25 and even in this claim it does not positively recite a mandrel as part of the apparatus but rather recites it in the context of the material being worked upon and the capabilities of the machine rather than requiring a mandrel having a diameter of 15 feet or more, and; (2) the references as expressed above suggested the use of multiple heads (in particular Koury and PCT '380) and envisioned that the use of multiple heads would have increased the productivity of the operation (see Koury at column 1, lines 39-52, column 2, lines 41-53, for example).

The applicant argues that "while it might normally be considered obvious to increase productivity by merely increasing the number of material delivery heads used simultaneously, such a straightforward approach works only up to a certain size of tool or mandrel beyond which the approach breaks down and no longer provides productivity increases." However as noted above the claims at hand do not positively recite the size of the mandrel or tool being worked upon and/or positively recite that the mandrel is part of the device and/or system and as such the claims are not commensurate in scope with the argument. Additionally, as noted above, there is more than just an increase in the number of heads performed by the processing and system of the disclosed claims. The actual construction of the applicator heads is different from the single head used in the prior art system. The use of a simpler construction for the material delivery head appears to have enabled the applicant to increase productivity by not only increasing the number of delivery heads but also by reducing the down time of the machine by reducing the amount of repair and/or servicing necessary for the individual heads of the plurality of heads. See the portions referred to above in the original disclosure. Note also that the delivery of a wider tape from the head would have expected to increase the output of the machine in the process (going from a 4 inch wide tape to a 12 inch wide tape must also account for increases in productivity).

The applicant argues that the machine down times for servicing and cleaning is random and that the mere use of more heads would have more likely increased the down time for the whole arrangement as if one head needs service the entire machine including all other heads must be stopped. It would appear that this is correct assuming

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that all machines must be stopped to service a single one of the multiple machines which randomly need service assuming that all machine heads are identical for comparison. However as noted above, applicant in the discussion of the machine utilization factor is not comparing like delivery heads for the single delivery head verses the multiple delivery heads. As such, the limitation as presented in the claims is not clear and concise. Additionally, one would have expected that the use of a single head which delivered material which was 4 inches wide would have been less efficient than a machine which delivered tape which was 12 inches wide where the complexity of the delivery head which delivered the 4 inch wide tape was greater than that of the 12 inch wide tape (increases in complexity of the machine would have been expected to lead to a greater need for servicing). For applicant to make a fair comparison, it is suggested that the applicant compare the closest prior art (PCT '380) with two heads verses the machine of the claims with two heads and determine which is more productive. The disproportionate increase appears to have been due to the construction of the delivery heads themselves and not to the use of more than one head of the same construction. In other words, one using multiple complex heads would have expected to have reduced processing time (due to service needs), however when the machine was operating it would operate at a much faster rate than a single machine alone. However if one were to replace these complex heads with heads which were simpler in construction with a lesser need for servicing, one would have expected not only increased productivity when operating the machine but a greater amount of time for operating the same (less down time). There simply is nothing unexpected of the same.

Regarding the specific claims, the applicant notes that claims 11, 19, 24 and 25 now require a lay down rate of 700 pounds per hour. The applicant is advised that the amount of material applied was a function of the type of heads employed which applied tapes of 12 inch width onto the tool. The machines of the prior art appear to be capable of such application and speeds for material delivery. The system of the prior art as defined above was clearly capable of such delivery rates. The claims at hand do not specify the types of delivery heads employed or the types of tapes applied to attain the specified rates and again the scope of the claims is unclear.

Regarding the mandrel diameter and the disproportionate application of the material, these limitations have been discussed in full detail above. As noted above, the evidence of "unexpected results" should be provided by way of a declaration which compares the closest prior art to that of the claimed invention where the claims are commensurate in scope with the claims (including the specifics of the material delivery heads) which enabled the greater productivity. No claims are allowed.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not


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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jeff H. Aftergut
Primary Examiner
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JHA
August 1, 2006